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REMARKS

Claims 1-8 remain pending in this application.

Rejection of Claims 1-3 and 5-8 under 35 USC § 103(a)

Claims 1-3 and 5-8 are rejected under 35 USC 103(a) as being unpatentable over Chen et al. (U.S. Patent No. 6,259,741) in view of Lim et al. (U.S. Patent No. 6,333,952).

The present invention provides a process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of converting the decoded data. For a pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with the coded pixel group. Independent claims 1, 7 and 8 each include similar limitations to those discussed above.

The present claimed invention teaches a process for the format conversion of an image. However, unlike traditional converters, the present claimed invention skips the conversion process for specific groups of blocks. Blocks encoded in an inter mode having a null residue skip the step of conversion and are replaced by a copy of its respective previously decoded and converted blocks.

Chen et al. describe a system for converting the color format of a digital video bistream. Chen et al. at least partially decompress the pre-converted bitstream to recover chroma data in a pixel domain. "When the pre-conversion bistream comprises inter coded images, and the recovered chroma data has a first chroma format that corresponds to the first format of the pre-converted bitstream, the method includes the further step[s] of: recovering motion vectors associated with the luma data from the pre-conversion bitstream" (Col. 3, lines 47-52).

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The Office Action asserts that Chen et al. disclose the detection of inter type data with no residue. However, Chen et al. detect “when the pre-conversion bitstream comprises inter coded images, and the recovered chroma data has a **first chroma format** that corresponds to the first format of the pre-converted bitstream” (Col. 3, lines 47-50). Such formats include 4:4:4, 4:2:2 and 4:2:0. These formats identify the **organization** of the image by detailing the types and quantities of different chroma blocks. This is unlike the present claimed invention which detects the **value** of the residue of a portion of an inter type image. Residue is the difference between a current image and a previous image. Therefore, when the residue is null, there is no difference between a current image and previous image and the current image portion needs not be decoded. Thus, Chen et al. neither disclose nor suggest “if the decoding mode is of the “inter” type with no residue, the conversion is preformed” as recited in claims 1, 7 and 8 of the present claimed invention.

Additionally, the Office Action asserts that Chen et al. disclose copying a converted pixel group of a preceding image linked to the current pixel group by a motion vector. Chen et al. describe a group of pixels of a preceding image copied through device 330 (fig. 3) for inter decoding. However, devices 310, 315, 325, 330 relate to data decoding and not to format conversion. Thus, the group of pixels copied by Chen et al. are **decoded and not converted** as in the present claimed invention. Accordingly, switch 325 does not disclose a copy of a **converted** pixel group. Therefore, Chen et al. neither disclose nor suggest “a copy of a **converted** pixel group of a preceding image linked by the motion vector associated with said coded pixel group” as recited in claims 1, 7 and 8 of the present claimed invention.

The Office Action similarly asserts that Chen et al. disclose the copying of data from a preceding image. Chen et al. describe a Switch 327 which is used to subtract a block of a previous reconstructed image from a converted current image block to recover a first quantization precision level. This is unlike the present claimed invention which **copies** a group of pixels of a **previously reconstructed image**. Accordingly, switch 327 does not disclose providing a **copy** of a converted pixel group. Therefore,

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Chen et al. neither disclose nor suggest “a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group” as recited in claims 1, 7 and 8 of the present claimed invention. Furthermore, the conversion process corresponds to the filter 340 and is made uniformly over the entire image. This is entirely unlike the present claimed invention which seeks to minimize the conversion process over the image.

The present claimed invention is concerned with a copy of pixels from a previous converted image **for the conversion** of the image in the new format. Chen et al. are concerned with a copy of pixels from a previous converted image **for the coding** of the image in this converted format (data compression using inter mode). Therefore, Chen et al., unlike the present claimed invention, are not concerned with a conversion by a copy of a converted pixel group of a preceding image.

Lim et al. describe a decoder for a digital TV receiver. Lim et al. describe a first step of decoding coded data (circuit 61 fig. 9) and a second step of converting decoded data (circuits 84 and 93, fig. 9). The second step includes a first processing (circuit 84, fig. 9) for the conversion of the B-type frames and a second processing (93) for the conversion of the I and P-type frames.

The Office Action asserts that Lim et al. teach a first step of decoding and a second step of converting data. However, as discussed above, Lim et al. describe a first process for the conversion of B-type frames and a second process for the conversion of I and P type frames. However, the present claimed invention discloses different processes for the conversion of the frames using inter coding (P and B-type frames) and for the conversion of the I-type frames. Thus, the use of a same conversion process for the I and P-type frames, disclosed by Lim et al., teaches away from the solution of the present claimed invention. Furthermore, Lim et al. similarly to Chen et al., neither disclose nor suggest “if the decoding mode is of the “inter” type with no residue, the conversion is preformed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group” as recited in claims 1, 7 and 8 of the present claimed invention.

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The Office Action asserts that it would have been obvious to combine the teachings of Chen et al. and Lim et al. Chen et al. disclose a first step for decoding the coded data. Circuits 310, 315, 330, 335, 320 (see fig. 3) allow a decoding of the bitstream in order to get an image at the output of 335. Chen et al. disclose a second step, circuit 340, which is a conversion of the whole decoded image into a new format through a filtering. Thus, Chen et al. disclose both a first step of decoding and a second step of converting.

Chen et al. are concerned with complexity (see Col. 3, line 9). Chen et al. already disclose a two step solution. Thus, to search in another document for an alternate solution would not be obvious to one skilled in the art. Looking for an alternate solution would only add to the complexity of the system. Furthermore, Chen et al. describe a conversion process strictly for inter frames (P and B-type frames) and a separate conversion for I-frames. Lim et al. describe a conversion process for both I and P-frames and a second conversion process for B-type frames. Thus, the conversion described by Lim et al. is directed towards different frame types than those described in the conversion process of Chen et al. The combination of Chen et al. and Lim et al. would thus produce a single conversion process for P, B and I-type frames. This combination would not produce an operable invention converting I frames with a first process and P and B frames with a second process. Therefore, it would not have been obvious to combine the systems of Chen et al. and Lim et al. Additionally, this combination is unlike the present claimed invention which converts I frames through a first process, based on the existence of residue, and converts P and B frames through a second process.

Chen et al. disclose the decoding and the converting of the data. Similarly, Lim et al. disclose the decoding and the converting of the data. However, Chen et al., similarly to Lim et al., are not concerned with proposing a specific conversion process for the inter mode with a null residue as is the present claimed invention. Therefore, even if one were to combine the systems of Chen et al. and Lim et al., the combined system, similar to the individual systems, would neither disclose nor suggest "if the

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 decoding mode is of the "inter" type with no residue, the conversion is preformed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group" as recited in claims 1, 7 and 8 of the present claimed invention.

In view of the above remarks, it is respectfully submitted that there is no 35 USC 112 enabling disclosure provided by Chen et al. and Lim et al., when taken alone or in combination, that anticipates the present invention as claimed in claims 1, 7 and 8. As claims 2-3 and 5-6 are dependent on claim 1, it is respectfully submitted that claims 2-3 and 5-6 are patentable for the same reasons discussed hereinabove with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Rejection of Claim 4 under 35 USC § 103(a)

Claim 4 is rejected under 35 USC 103(a) as being unpatentable over Chen et al. in view of Lim et al. and further in view of Kato (U.S. Patent No. 5,701,164).

Kato describes a macroblock coding process. The coding process utilizes a macroblock judge element in which the "motion compensating predictive error signal S16 of macroblock is caused to undergo judgment, at non-zero coefficient judge element 94, as to whether signal to be transmitted exists. When the signal to be transmitted exists, the judge element informs judge element 94 of that...[setting] macroblock flag S90 to "FALSE"...On the other hand, in the case where there exists no predictive error signal to be transmitted...judge element 94 notifies signal of "TRUE" to judge element 93" (Col. 24, lines 54-62).

The Office Action asserts that Kato teaches determining a coding mode from a "skipped macroblock" or "uncoded" mode. However, unlike the present claimed invention Kato is not concerned with both skipped macroblocks and uncoded macroblocks. The motion compensation predictive error signal, difference motion vector signal, motion vector signal, motion compensation mode signal, picture structure

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signal, prediction type signal, field motion vector reference parity signal, sub-motion vector signal, predicted field parity signal and picture coding type signal, are all input into the skipped macroblock judge element 28. The macroblock flag is then set to "TRUE" when all the coefficients of the input signals are set to zero. Otherwise the flag is set to "FALSE". This is unlike the present claimed invention which checks for an uncoded mode. "The "uncoded" mode consists, for its part, of a macroblock which contains a header and no data item concerning the DCT coefficients" (Page 8, lines 26-28). Therefore, Kato neither discloses nor suggests that the "coding mode is determined from the "skipped macroblock" or "uncoded" mode" as recited in claim 4 of the present claimed invention. Additionally, Kato, similar to Chen et al. and Lim et al., neither discloses nor suggests "if the decoding mode is of the "inter" type with no residue, the conversion is preformed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group" as recited in claims 1, 7 and 8 of the present claimed invention.

The Office Action asserts that it would have been obvious to combine the teachings of Chen et al., Lim et al. and Kato. Chen et al. describe a conversion process strictly for inter frames (P and B-type frames) and a separate conversion for I-frames. Lim et al. describe a conversion process for both I and P-frames and a second conversion process for B-type frames. Although the criteria with which each frame is analyzed is different for each frame type (Col. 24, line 54- Col. 25, line 32), Kato describes a single process for I, P and B-type frames (Col. 25, lines 35-40). "In the case where skipped macroblock flag S90 is "FALSE", the content of memory 91 is copied into memory 92. Moreover, with respect to macroblock in which skipped macroblock flag S90 is "TRUE", VLC element 20 does not any data" (Col. 25, lines 35-40). The combination of Chen et al., Lim et al. and Kato would thus produce a single conversion process for P, B and I frames. This combination would not produce an operable invention converting I frames with a first process and P and B frames with a second process. Therefore, it would not have been obvious to combine the systems of Chen et al., Lim et al. and Kato. Additionally, this combination is unlike the present claimed invention which converts I frames through a first process, based on the existence of residue, and converts P and B frames through a second process.

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Kato, similarly to Chen et al. and Lim et al., are not concerned with proposing a specific conversion process for the inter mode with a null residue as is the present claimed invention. Therefore, even if one were to combine the systems of Chen et al., Lim et al. and Kato, the combined system, similar to the individual systems, would neither disclose nor suggest "if the decoding mode is of the "inter" type with no residue, the conversion is preformed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group" as recited in claims 1, 7 and 8 of the present claimed invention.

In view of the above remarks, it is respectfully submitted that there is no 35 USC 112 enabling disclosure provided by Chen et al., Lim et al. and Kato, when taken alone or in combination, that anticipates the present invention as claimed in claims 1, 7 and 8. As claim 4 is dependent on claim 1, it is respectfully submitted that claim 4 is patentable for the same reasons discussed hereinabove with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicants' attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

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No fee is believed due with this response. However, should a fee be due, please charge the additional fee to Deposit Account 07-0832.

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